REMARKS/ARGUMENTS

With respect to the abstract, the abstract has been revised to eliminate all legal phraseology such as "comprises", "means" and "said".

With respect to the disclosure, paragraph [0030] is being amended as suggested by the Examiner and the table forming part of paragraph [0030] is being reinstated; as the Examiner appreciates, it was never the intention to delete this table, but rather it had been thought that this table would be treated as a separate paragraph, which we now understand is not the case.

In paragraph 6 and elsewhere, the various chemical compounds are now correctly set out with the numerals provided as subscripts.

Similarly, in the claims, claims 3-6, 14, 18 and 19 have been revised to ensure that the chemical compounds are correctly represented with subscripts for the numerals. The other minor inconsistencies in the claims noted by the Examiner have been entered as requested.

Claim 1 is further being amended by, without prejudice, in effect introducing into claim 1 the feature of a supply of the chemical hydride solution. This feature had been introduced in claims 2, 3 5, 6, 7 and 11 in the previous amendment. As the feature is not introduced into claim 1, this previous amendment is, in effect, being withdrawn.

A similar amendment is being entered to independent claim 14.

Turning to the Examiner's rejection of the claims under 35 U.S.C. 103, the argument distinguishing between structural elements in the apparatus claim and statements of intended use is first addressed.

The Examiner had argued that a recitation of the intended use of a claimed invention must result in a "structural" difference between the claimed invention of the prior art in order to patentably distinguish the claimed invention. Citing *In re Casey* and *In re Otto*, the Examiner noted that if the prior art structure is cabable of performing the intended use then it meets the claim. More specifically, the Examiner

argued that any reference to specific reactants (hydrides), freezing point depressing agent(s), the alkaline additive(s) etc., merely relate to a manner of operating the chemical hydride hydrogen generation system and as such do not limit an apparatus claim.

Certainly, where any reference to materials used in an apparatus are by way of mere statements of intended use, e.g. in the form of "for use with...", then it is conventionally understood that these materials or substances form no part of the claimed structure and, as the Examiner has argued, a cited reference intended for use with different materials but capable of operating the same way as the invention with such materials, can properly be cited. However, where the relevant element or substance is actually claimed as part of the structure, it is submitted that the Examiner has to give it full weight.

The Examiner referred to MPEP 2114 and 2115. MPEP 2115 cites *In re Young* and *In re Casey*. In *In re Young*, the claim was to a machine for making concrete beams including a limitation to the concrete reinforced member made by the machine as well as the structural elements of the machine itself. "The court held that the inclusion of the article formed did not, without more, make the claim patentable" (quotation from MPEP 2115 with emphasis added).

The present invention is similar to the *In re Young* situation in that the claim does include a substance or material, the chemical hydride solution, necessary for the operation of the system. However, it is different from that case, in that here the chemical hydride solution is not merely incidental but rather, the claim makes it clear exactly how the other elements of the system engage with or operate with this chemical hydride solution. This is made clear below, in the analysis of the current former claim 1 in relation to the cited Nakanishi et al reference.

To emphasize this point, it can be noted that such a form of claim would arguably only be infringed by a system that does indeed include the chemical hydride solution. Thus, there may be an argument that a manufacturer and a supplier of the system, supplied dry and without the chemical hydride solution, does not infringe this claim, and that the claim is only infringed by an end user who fills the system with the

solution. There may be an argument based on contributory infringement or the like that a person who supplies the system, without the solution, still infringes, but this can be a more difficult argument to sustain. (These arguments are made to emphasize the possible effect of including the supply of the chemical hydride solution of the claim and solely for purposed of illustration of argument. These statements are without prejudice.)

Turning to an analysis of amended claim 1 and the prior art, this will show that there are clear structural difference between the invention as now claimed and the Nakanishi et al. reference.

Claim 1 now requires the presence of both the storage means for the hydride solution and the liquid hydride solution itself. As such, the storage means must be capable of storing a liquid chemical compound capable of generating the necessary hydrogen.

In contrast, Nakanishi et al. is quite clear in providing a store of a bulk metal hydride. Indeed, to render this bulk hydride of any use, it then provides a fine powdering mechanism 22, and separately an injector 3 for injecting water into the reactor 23 (column 4, lines 34-47 of Nakanishi et al.) The present invention then provides a reactor containing a catalyst. Nakanishi et al. do provide a reactor 23 that may be provided with a catalyst.

The first supplying device of the present invention has been amended to specify that it provides two functions: (1) It functions to supply the hydride solution from the storage means to the reactor; and (2) It functions to return the chemical hydride solution to the storage means; note also that 14 requires a "return line" with a similar function. The reason for this is that in a system that uses a chemical hydride solution, it is recognized that not all of the available hydride will be consumed in one pass through the reactor. Rather, supply of the solution to the reactor, and control of other processing conditions, serves to control the rate of hydrogen generation. When hydrogen is not needed, then solution supply to the reactor is turned off and any remaining solution in the reactor is returned to the store, for later use. For example, in the fuel cell system used in an automobile or the like, demand for power for the fuel cell, and hence for hydrogen from the hydrogen generation system, can fluctuate considerably. The system

based on controlling flow of a hydride solution to a reactor, suitably designed, can provide rapid response, in terms of hydrogen generation.

In contrast, the Nakanishi et al. proposal is quite different. It is clear that the passage of the hydride through the reactor is once through arrangement. The bulk hydride is powdered, as detailed above, passes through reactor 23 and then falls down to form a product 24. It is simply stated that the product 24 "accumulates on the bottom of reactor 23 (column 9, line 58). The overall assumption in Nakanishi et al. is that all of the available hydride will be consumed. There is a surprising statement (column 10, lines 9-15) that any excess hydrogen can be supplied to the product 24 to regenerate the hydride. This seems to teach or suggest that the hydride can be regenerated, but there is no teaching or suggestion that it could be returned back to the storage 21, nor any mechanism provided for this purpose.

Accordingly, it is submitted that the necessary functions and features of: (i) the storage means; (ii) the supply of the hydride (now explicitly part of the claimed structure); and, (iii) the first supplying device of the present invention are clearly not disclosed in Nakanishi et al. As the present invention is now concerned with a chemical hydride solution at all times, the invention provides a delivery means for delivering additional solvent to the hydride solution. As detailed in the specification and as has previously argued, a problem with hydride generation systems is that the product of the reaction is less soluble than the original chemical hydride. Accordingly, if care is not taken, this product can precipitate out of solution. In the system of the present invention, where it is necessary to maintain the solution free of precipitates and available for passage and pumping through the system, this is a significant problem.

These characteristics are clearly not taught or suggested in Nakanishi et al. The rejection under 35 U.S.C. 103 is therefore respectfully traversed, and it is submitted that the claims are clearly allowable over the prior art of record.

Respectfully submitted,

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